Math (Science)	Group-II	Paper
Time: 2.10 Hours	(Subjective Type)	Max. Marks: 6

(Part-I)

2. Write short answers to any Six (6) questions: 12

(i) Find the product: $\begin{bmatrix} 8 & 5 \\ 6 & 4 \end{bmatrix}\begin{bmatrix} 2 & -5/2 \\ -4 & 4 \end{bmatrix}$

Ans Given

$$\begin{bmatrix} 8 & 5 \\ 6 & 4 \end{bmatrix}\begin{bmatrix} 2 & -5/2 \\ -4 & 4 \end{bmatrix}$$

$$= \begin{bmatrix} 8(2) + 5(-4) & 8(\frac{-5}{2}) + 5(4) \\ 6(2) + 4(-4) & 6(\frac{-5}{2}) + 4(4) \end{bmatrix}$$

$$= \begin{bmatrix} 16 - 20 & -20 + 20 \\ 12 - 16 & -15 + 16 \end{bmatrix}$$

$$= \begin{bmatrix} -4 & 0 \\ -4 & 1 \end{bmatrix}$$

(ii) Define square matrix and give example.

Ans A matrix is called a square matrix if its number of rows is equal to its number of columns. e.g., $A = \begin{bmatrix} 2 & -1 \\ 0 & 3 \end{bmatrix}$

(iii) Use laws of exponents to simplify: $\left(\frac{8}{125}\right)^{-4/3}$

Ans $\left(\frac{8}{125}\right)^{-4/3} = \left(\frac{125}{8}\right)^{4/3}$

$$= \frac{(125)^{4/3}}{(8)^{4/3}}$$

$$= \frac{(5 \times 5 \times 5)^{4/3}}{(2 \times 2 \times 2)^{4/3}}$$

$$= \frac{(5^3)^{4/3}}{(2^3)^{4/3}}$$

$$= \frac{5^4}{2^4}$$

$$= \frac{625}{16}$$

(iv) Simplify and write $\left(\frac{1+i}{1-i}\right)^2$ in the form of a + b*i*.

Ans $$\left(\frac{1+i}{1-i}\right)^2 = \left[\frac{1+i}{1-i} \times \frac{1+i}{1+i}\right]^2$$

$$= \left[\frac{(1+i)^2}{(1)^2-(i)^2}\right]^2$$

$$= \left[\frac{1+2i+i^2}{1-(-1)}\right]^2$$

$$= \left[\frac{1+2i+(-1)}{1+1}\right]^2$$

$$= \left[\frac{1+2i-1}{2}\right]^2$$

$$= \left(\frac{2i}{2}\right)^2$$

$$= i^2$$

$$= -1$$

(v) Find the value of x from the equation: $\log_x 64 = 2$.

Ans Write the above equation in exponential form:

$$x^2 = 64$$

$$(x)^2 = (8)^2$$

$$\sqrt{x^2} = \sqrt{8^2}$$

Thus, $x = 8$

(vi) If log 2 = 0.3010, log 3 = 0.4771 , log 5 = 0.6990, then find the value of log 30.

Ans log 30 = log (2 × 3 × 5)

log 30 = log 2 + log 3 + log 5

log 30 = 0.3010 + 0.4771 + 0.6990

log 30 = 1.4771

(vii) **Write in the form of a single logarithm:**

$\log 25 - 2\log 3$

Ans $\log 25 - 2\log 3 = \log 25 - \log 3^2$

$$= \log \frac{25}{3^2}$$

(viii) **Rationalize the denominator of:** $\dfrac{\sqrt{3}-1}{\sqrt{3}+1}$

Ans

$$= \frac{\sqrt{3}-1}{\sqrt{3}+1} \times \frac{\sqrt{3}-1}{\sqrt{3}-1}$$

$$= \frac{(\sqrt{3}-1)^2}{(\sqrt{3})^2-(1)^2}$$

$$= \frac{(\sqrt{3})^2+(1)^2-2(\sqrt{3})(1)}{3-1}$$

$$= \frac{3+1-2\sqrt{3}}{2}$$

$$= \frac{4-2\sqrt{3}}{2}$$

$$= \frac{\cancel{2}(2-\sqrt{3})}{\cancel{2}}$$

$$= 2-\sqrt{3}$$

(ix) **Factorize:** $x^2 + x - 132$

Ans

$$x^2 + x - 132$$
$$= x^2 + 12x - 11x - 132$$
$$= x(x+12) - 11(x+12)$$
$$= (x-11)(x+12)$$

3. Write short answers to any Six (6) questions:

(i) **Find the H.C.F. of the expressions by factorizati**

$18(3^3 - 9x^2 + 8x)$, $24(x^2 - 3x + 2)$

Ans $18(x^3 - 9x^2 + 8x) = (2\times3\times3)\times(x^2 - 9x + 8)$

$$= (2\times3\times3)\times[x^2 - x - 8x + 8)]$$
$$= (2\times3\times3)\times[x(x-1) - 8(x-$$
$$= (2\times3\times3)\times(x-1)(x-8)$$

$24(x^2 - 3x + 2) = (2\times2\times2\times3)[x^2 - x - 2x + 2]$

$$= (2\times2\times2\times3)[x(x-1) - 2(x-$$
$$= (2\times2\times2\times3)(x-1)(x-2)$$

Now,

$$18(x^3 - 9x^2 + 8x) = 2 \times 3 \times 3 \times x \times (x-1) \times (x-8)$$
$$24(x^2 - 3x + 2) = 2 \times 2 \times 2 \times 3 \times (x-1) \times (x-2)$$
$$\text{H.C.F} = 2 \times 3 \times (x-1)$$
$$= 6(x-1)$$

(ii) Solve the equation and check for extraneous solution: $2\sqrt{t+4} = 5$

Ans

$$2\sqrt{t+4} = 5$$
$$2(t+4)^{1/2} = 5$$

By squaring both sides:

$$[2(t+4)^{1/2}]^2 = (5)^2$$
$$4(t+4)^{1/2 \times 2} = 25$$
$$4(t+4) = 25$$
$$4t + 16 = 25$$
$$4t = 25 - 16$$
$$4t = 9$$
$$\boxed{t = \frac{9}{4}}$$

Check:

$$2\sqrt{t+4} = 5$$
$$\sqrt{t+4} = \frac{5}{2}$$
$$\text{L.H.S} = \sqrt{t+4}$$
$$= \sqrt{\frac{9}{4} + 4}$$
$$= \sqrt{\frac{9+16}{4}}$$
$$= \sqrt{\frac{25}{4}} = \frac{5}{2} = \text{R.H.S}$$

iii) Find the solution set:

$$|3 + 2x| = |6x - 7|$$

Ans

$$|3 + 2x| = |6x - 7|$$
$$3 + 2x = \pm(6x - 7)$$

$$3 + 2x = 6x - 7$$
$$3 + 7 = 6x - 2x$$
$$10 = 4x$$
$$\frac{10}{4} = x$$
$$\Rightarrow \quad \boxed{x = \frac{5}{2}}$$

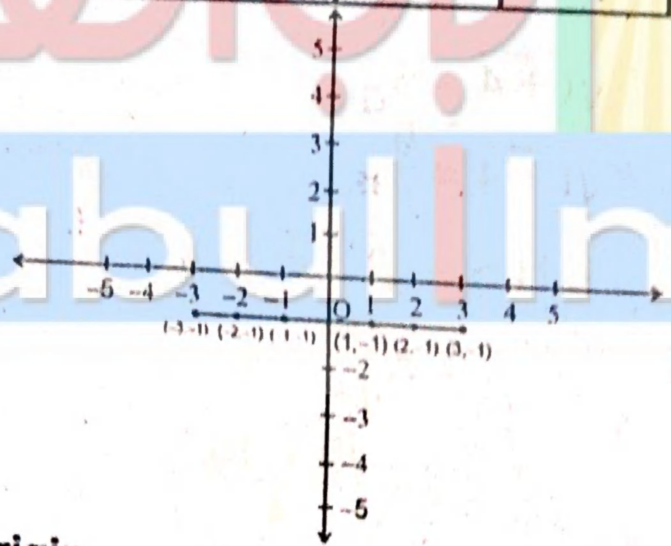
$$3 + 2x = -(6x - 7)$$
$$3 + 2x = -6x + 7$$
$$2x + 6x = 7 - 3$$
$$8x = 4$$
$$x = \frac{4}{8}$$
$$\boxed{x = \frac{1}{2}}$$

Thus, solution set $= \left\{\frac{5}{2}, \frac{1}{2}\right\}$.

(iv) Draw the graph of: $y = -1$

Ans Table ordered pairs that lie on the graph of $y = -1$

x =	−3	−2	−1	0	1	2	3
y =	−1	−1	−1	−1	−1	−1	−1



(v) Define origin.

Ans In Cartesian plane, two mutually perpendicul straight lines are drawn. The point where two lines meet called origin.

(vi) Find the distance between the following pairs points: A(−8, 1), B(6, 1)

Ans In the above pairs of points:

$x_1 = -8,\ x_2 = 6,\ y_1 = 1,\ y_2 = 1$

Distance formula:

$$d = \sqrt{|x_2 - x_1|^2 + |y_2 - y_1|^2} = |AB|$$

$$|AB| = \sqrt{[6 - (-8)]^2 + (1 - 1)^2}$$

$$|AB| = \sqrt{(6 + 8)^2 + (0)^2}$$

$$|AB| = \sqrt{14^2}$$

$$|AB| = 14$$

(vii) Find the mid-point of the line segment joining the pairs of points: A(–8, 1), B(6, 1)

Ans A(–8, 1), B(6, 1)

$$\text{Mid-point} = \left(\frac{-8 + 6}{2}, \frac{1 + 1}{2}\right)$$

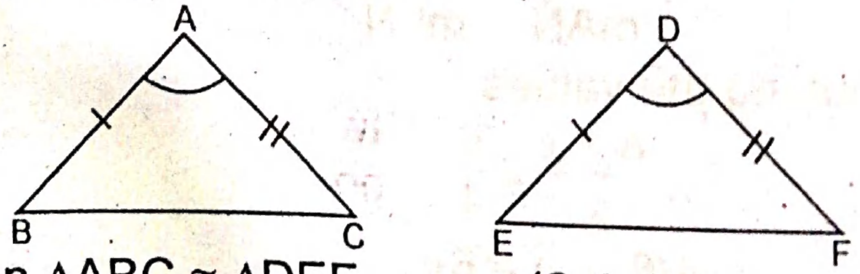
$$= (-1, 1)$$

(viii) What is S.A.S postulate?

Ans In any correspondence of two triangles, if two sides and their included angle of one triangle are congruent to the corresponding two sides and their included angle of the other, then the triangles are congruent.

In $\Delta ABC \longleftrightarrow \Delta DEF$, shown in the following figures,

$$\text{if} \begin{cases} \overline{AB} \cong \overline{DE} \\ \angle A \cong \angle D \\ \overline{AC} \cong \overline{DF} \end{cases}$$



then $\Delta ABC \cong \Delta DEF$ (S.A.S Postulate)

(ix) Define equilateral triangle.

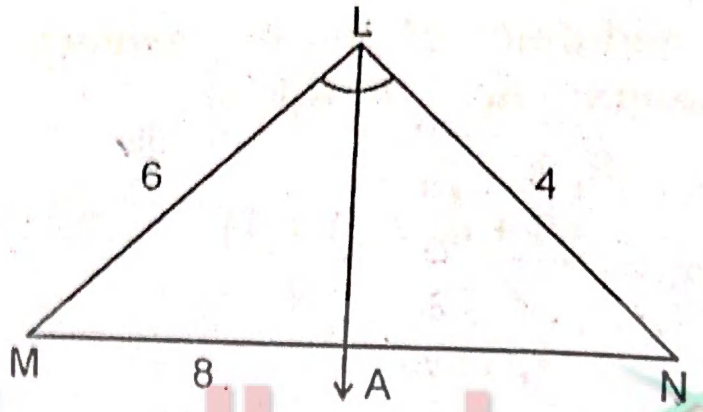
Ans If the length of all the three sides of a triangle are same, then the triangle is called an equilateral triangle.

4. **Write short answers to any Six (6) questions:**

(i) **Define proportion.**

Ans Equality of two ratios is defined as the proportion
a : b = c : d; then a, b, c and d are said to be a proportio

(ii) **If $m\overline{LN} = 4$, $m\overline{ML} = 6$ and $m\overline{MN} = 8$, then find $m\overline{MA}$ a $m\overline{AN}$:**



Ans Here,

Given: $mLM = 6$, $mLN = 4$, $mMN = 8$

Required: $m\overline{MA} = ?$ and

$m\overline{AN} = ?$

Let, $m\overline{AN} = x$

$m\overline{MA} = 8 - x$

Now

$$\frac{m\overline{MA}}{m\overline{AN}} = \frac{m\overline{LM}}{m\overline{LN}}$$

By putting the values:

$$\frac{8 - x}{x} = \frac{6}{4}$$

$$4(8 - x) = 6x$$

$$32 - 4x = 6x$$

$$32 = 6x + 4x$$

$$32 = 10x$$

$$\frac{32}{10} = x$$

$\Rightarrow$ $x = 3.2$

$\therefore$ $m\overline{AN} = 3.2$

and $m\overline{MA} = 8 - x$

$= 8 - 3.2$

$= 4.8$

(iii) Define similar triangles.

Ans Two (or more) triangles are called similar, if they are equiangular and measure of their corresponding sides are proportional. The symbol for similar triangle is (~).

(iv) If 10 cm, 6 cm and 8 cm are the lengths of triangle, verify that sum of two sides of a triangle is greater than the third side.

Ans Let $m\overline{AB} = 10$ cm

$m\overline{BC} = 6$ cm

$m\overline{CA} = 8$ cm

> greater
< Small

Now,

$m\overline{AB} + m\overline{BC} = 10 + 6 = 16 \text{ cm} > m\overline{CA} \ (= 8 \text{ cm})$

$m\overline{BC} + m\overline{CA} = 6 + 8 = 14 \text{ cm} > m\overline{AB} \ (= 10 \text{ cm})$

$m\overline{CA} + m\overline{AB} = 8 + 10 = 18 \text{ cm} > m\overline{BC} \ (= 6 \text{ cm})$

It is verified that sum of lengths of any two sides of a triangle is greater than the length of the third side.

(v) Verify that the following measures of sides are right angled: a = 9 cm, b = 12 cm, c = 15 cm

Ans $a = 9$ cm , $b = 12$ cm , $c = 15$ cm

By taking square each

$(a)^2 = (9)^2$, $(b)^2 = (12)^2$, $(c)^2 = (15)^2$

$a^2 = 81$, $b^2 = 144$, $c^2 = 225$

As we know that:

$c^2 = a^2 + b^2$

$225 = 81 + 144$

$225 = 225$ Verified.

(vi) **If two sides of triangle are 5 cm and 13 cm, then find the perpendicular of triangle?**

Ans Let, two sides of a triangle:

$\overline{BC} = 13$, $\overline{AB} = 5$

Perpendicular of triangle:

$\overline{AC} = ?$

As we know that: (Pythagora's Theorem)

$$(\overline{AC})^2 = (\overline{BC})^2 - (\overline{AB})^2$$

$$(\overline{AC})^2 = (13)^2 - (5)^2$$

$$(\overline{AC})^2 = 169 - 25$$

$$(\overline{AC})^2 = 144$$

By taking under root both sides:

$$\sqrt{(\overline{AC})^2} = \sqrt{144}$$

$$\boxed{\overline{AC} = 12 \text{ cm}}$$

(vii) **Define parallelogram with its formula to find its area**

Ans A figure formed by four non-collinear points in the plane is called parallelogram. Its characteristics are as under:

(1) Its equal opposite sides are of equal measure.

(2) Its opposite sides are parallel.

(3) Measure of none of the angle is 90^o.

Area of parallelogram ABCD:

$$\text{Area} = \text{base} \times \text{altitude}$$

$$\text{Area} = b \times h$$

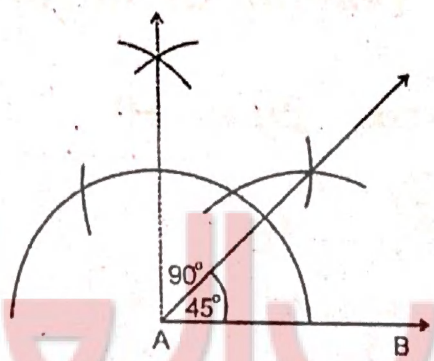
Where

$$\text{Base} = b = \frac{A}{h}$$

$$\text{Altitude} = h = \frac{A}{b}$$

(viii) Bisect the angle of 90°.

Ans



Constructive Procedure:

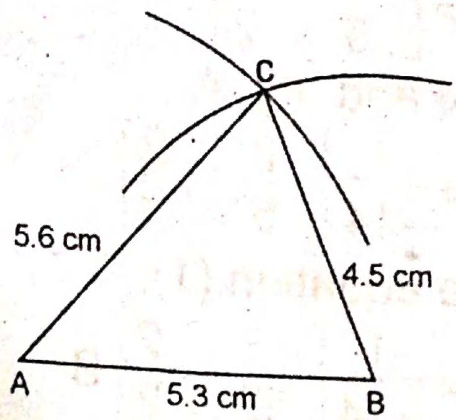
(1) Firstly, draw a line segment $\overline{AB}$ of any measurement.

(2) At point A, draw a 90° angle.

(3) Bisect the 90° angle with the help of compass, *i.e.*, 45° angle as shown in the figure.

(ix) Construct a triangle ABC = $m\overline{AB}$ = 5.3 cm $m\overline{BC}$ = 4.5 cm, $m\overline{CA}$ = 5.6 cm.

Ans



Constructive Procedure:

(1) Firstly, take a line segment $m\overline{AB} = 5.3$ cm.

(2) Take a point A as centre and draw an arc of 5.6 cm wi[th] the help of compass.

(3) Similarly, take a point B and draw an arc of 4.5 cm.

(4) Both A and B cut each other at point C.

(5) By joining these lines, we have constructed ΔABC.

(Part-II)

NOTE: Attempt any Three (3) questions. But question 9 i[s] Compulsory.

Q.5.(a) Solve the system of linear equations usin[g] matrices:

$2x - 2y = 4, \quad -5x - 2y = -10$ (4)

Ans

$$2x - 2y = 4$$
$$-5x - 2y = -10$$

$$\begin{bmatrix} 2 & -2 \\ -5 & -2 \end{bmatrix}\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 4 \\ -10 \end{bmatrix}$$

Let, $AX = B$

$$X = A^{-1}B$$

Where, $A^{-1} = \frac{1\ \text{Adj. } A}{|A|}$ (1)

$$|A| = \begin{vmatrix} 2 & -2 \\ -5 & -2 \end{vmatrix}$$

$$|A| = (2)(-2) - (-5)(-2)$$

$$|A| = -4 - 10$$

$$\boxed{|A| = -14}$$

$$\text{adj. } A = \begin{bmatrix} -2 & 2 \\ 5 & 2 \end{bmatrix}$$

By putting |A| and adj. A

$$A^{-1} = \frac{1}{-14}\begin{bmatrix} -2 & 2 \\ 5 & 2 \end{bmatrix}$$

Put A^{-1} in the equation (1),

$$X = \frac{1}{-14}\begin{bmatrix} -2 & 2 \\ 5 & 2 \end{bmatrix} B$$

$$X = \frac{1}{-14}\begin{bmatrix} -2 & 2 \\ 5 & 2 \end{bmatrix}\begin{bmatrix} 4 \\ -10 \end{bmatrix}$$

$$X = \frac{1}{-14}\begin{bmatrix} -2(4) + 2(-10) \\ 5(4) + 2(-10) \end{bmatrix}$$

$$X = \frac{-1}{14}\begin{bmatrix} -8 - 20 \\ 20 - 20 \end{bmatrix}$$

$$X = \frac{1}{14}\begin{bmatrix} -28 \\ 0 \end{bmatrix}$$

$$X = \begin{bmatrix} \frac{-28}{-14} \\ \frac{0}{-14} \end{bmatrix}$$

$$X = \begin{bmatrix} 2 \\ 0 \end{bmatrix}$$

$$\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} 2 \\ 0 \end{bmatrix}$$

By comparing, we get solution set, *i.e.*, {2, 0}

(b) Simplify: $\sqrt{\frac{(216)^{2/3} \times (25)^{1/2}}{(0.04)^{-3/2}}}$ (4)

Ans

$$\sqrt{\frac{(216)^{2/3} \times (25)^{1/2}}{(0.04)^{-3/2}}}$$

$$= \sqrt{\frac{(6^3)^{2/3} \times (5^2)^{1/2}}{(\frac{4}{100})^{-3/2}}}$$

$$= \sqrt{\frac{6^{3 \times 2/3} \times 5^{2 \times 1/2}}{(\frac{1}{25})^{-3/2}}}$$

$$= \sqrt{\frac{6^2 \times 5^1}{(\frac{1}{5^2})^{-3/2}}}$$

$$= \sqrt{\frac{6^2 \times 5}{(5^{-2})^{-3/2}}}$$

$$= \sqrt{\frac{6^2 \times 5}{5^{(-2) \times (-3/2)}}}$$

$$= \sqrt{\frac{6^2 \times 5}{5^3}}$$

$$= \sqrt{\frac{6^2}{5^3 \,.\, 5^{-1}}}$$

$$= \sqrt{\frac{6^2}{5^2}}$$

$$= \left(\frac{6^2}{5^2}\right)^{1/2}$$

$$= \frac{6^{2 \times 1/2}}{5^{2 \times 1/2}}$$

$$= \frac{6}{5}$$

Q.6.(a) Use logarithm tables to find the value of: **(4)**

$$\sqrt[3]{\frac{0.7214 \times 20.37}{60.8}}$$

Ans Let $x = \sqrt[3]{\left(\frac{0.7214 \times 20.37}{60.8}\right)}$

By taking 'log' both sides:

$$\log x = \log\left(\frac{0.7214 \times 20.37}{60.8}\right)^{1/3}$$

$$\log x = \frac{1}{3}[\log(0.7214) + \log(20.37) - \log(60.8)]$$

$$\log x = \frac{1}{3}[\bar{1}\,.\,8582 + 1.3090 - 1.7839]$$

$$\log x = \frac{1}{3}[-1 + 0.8582 + 1.3090 - 1.7839]$$

$$\log x = -0.2056 - 1 + 1$$

$$\boxed{\log x = \bar{1}\,.\,7944}$$

By taking antilog both sides:

$$x = \text{Antilog}(\bar{1}.7944)$$

$$\boxed{x = 0.6229}\ \text{Ans}$$

(b) If $q = \sqrt{5} + 2$, then find the values of $q - \frac{1}{q}$ and $q^2 + \frac{1}{q^2}$. **(4)**

Ans Given

$$q = \sqrt{5} + 2 \quad \text{(i)}$$

$$\frac{1}{q} = \frac{1}{\sqrt{5}+2} \quad \text{(ii)}$$

$$= \frac{1}{\sqrt{5}+2} \times \frac{\sqrt{5}-2}{\sqrt{5}-2}$$

$$= \frac{\sqrt{5}-2}{(\sqrt{5})^2 - (2)^2}$$

$$= \frac{\sqrt{5}-2}{5-4}$$

$$= \frac{\sqrt{5}-2}{1}$$

$$\boxed{\frac{1}{q} = \sqrt{5} - 2}$$

Subtract eq. (i) and (ii)

$$q - \frac{1}{q} = (\sqrt{5}+2) - (\sqrt{5}-2)$$

$$= \sqrt{5} + 2 - \sqrt{5} + 2$$

$$\boxed{q - \frac{1}{q} = 4}$$

By taking square of both sides,

$$\left(q - \frac{1}{q}\right)^2 = (4)$$

$$q^2 + \frac{1}{q^2} - 2(q)(\frac{1}{q}) = 16$$

$$q^2 + \frac{1}{q^2} - 2 = 16$$

$$q^2 + \frac{1}{q^2} = 16 + 2$$

$$\boxed{q^2 + \frac{1}{q^2} = 18}$$

Q.7.(a) Factorize the cubic polynomials by factor theorem: $x^3 + x^2 - 10x + 8$

Ans Let, $P(x) = x^3 + x^2 - 10x + 8$

The possible factors of the constant term:

are $\pm 1, \pm 2, \pm 4, \pm 8$

From factors of the constant:

Let, $x = 1$

$$P(1) = (1)^3 + (1)^2 - 10(1) + 8$$
$$= 1 + 1 - 10 + 8$$
$$P(1) = 0$$

Hence,

$x = 1$ is a zero of $P(x)$,

As $x - a = 0$

$x - 1 = 0$

So, $x - 1$ is the 1st factor of $P(x)$.

Similarly,

Let $x = 2$

$$P(2) = (2)^3 + (2)^2 - 10(2) + 8$$
$$= 8 + 4 - 20 + 8$$
$$P(2) = 0$$

Hence, $x = 2$ is a zero of $P(x)$:

As $x - a = 0$

$x - 2 = 0$

So, $x - 2$ is the 2nd factor of $P(x)$.

Again,

Let $x = -4$

$$P(-4) = (-4)^3 + (-4)^2 - 10(-4) + 8$$

$$= -64 + 16 + 40 + 8$$

$$= -64 + 64$$

$$P(-4) = 0$$

Hence, $x = -4$ is a zero of $P(x)$;

As $x - a = 0$

$$x - (-4) = 0$$

$$x + 4 = 0$$

So, $x + 4$ is the 3[rd] and last factor of $P(x)$, as from the expression, there exists maximum three factor, *i.e.*,

The factors of $P(x)$ are:

$$(x - 1)(x - 2)(x + 4)$$

(b) For what value of k for which following expression will become a perfect square: $x^4 - 4x^3 + 10x^2 - kx + 9$. (4)

Ans

$$\begin{array}{r|l}
 & x^2 - 2x + 3 \\
\hline
x^2 & x^4 - 4x^3 + 10x^2 - kx + 9 \\
 & \pm x^4 \\
\hline
2x^2 - 2x & -4x^3 + 10x^2 - kx + 9 \\
 & \mp 4x^3 \pm 4x^2 \\
\hline
2x^2 - 4x + 3 & 6x^2 - kx + 9 \\
 & \pm 6x^2 \mp 12x \pm 9 \\
\hline
 & -kx + 12x
\end{array}$$

In case of perfect square, remainder must be zero. Thus,

$$-kx + 12x = 0$$

$$x(-k + 12) = 0$$

$$-k + 12 = 0$$

$$12 = k$$

$$\boxed{k = 12}$$

Q.8.(a) Solve the equation and check:

$$\sqrt{5x-7}-\sqrt{x+10}=0$$

Ans Given: $\sqrt{5x-7}-\sqrt{x+10}=0$

$$\sqrt{5x-7}=\sqrt{x+10}$$

By taking square both sides:

$$(\sqrt{5x-7})^2=(\sqrt{x+10})^2$$

$$5x-7=x+10$$

$$5x-x=10+7$$

$$4x=17$$

$$\boxed{x=\frac{17}{4}}$$

Check:

Substituting $x=\frac{17}{4}$ in original equation:

$$\sqrt{5x-7}-\sqrt{x+10}=0$$

$$\sqrt{5(\frac{17}{4})-7}-\sqrt{\frac{17}{4}+10}=0$$

$$\sqrt{\frac{85}{4}-7}-\sqrt{\frac{17}{4}+10}=0$$

$$\sqrt{\frac{85-28}{4}}-\sqrt{\frac{17+40}{4}}=0$$

$$\sqrt{\frac{57}{4}}-\sqrt{\frac{57}{4}}=0$$

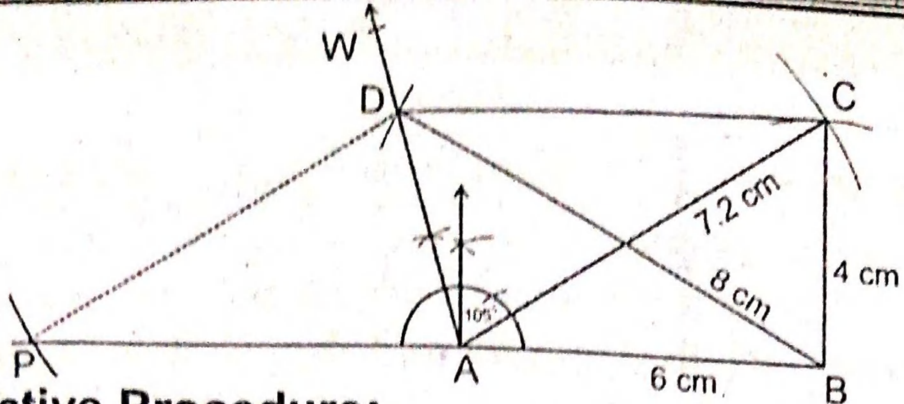
$$0=0$$

Thus, solution set $=\left\{\frac{17}{4}\right\}$ Checked.

(b) Construct a triangle equal in area to the quadrilateral ABCD, having: (4)

$m\overline{AB}=6$ cm, $m\overline{BC}=4$ cm, $m\overline{AC}=7.2$ cm, $m\angle BAD=105^\circ$ and $m\overline{BD}=8$ cm

Ans



Constructive Procedure:

(i) Take a line segment $\overline{AB} = 6$ cm.

(ii) Take an angle $\angle BAW = 105^\circ$ at point A.

(iii) Take B as centre and draw an arc of radius 8 cm which cuts $\overrightarrow{AW}$ at D.

(iv) Take A and B as centre and draw arcs of radius 7.2 cm and 4 cm, respectively. These intersect at point C.

(v) Join C to B and D.

(vi) Join C to A.

(vii) Take $\overline{CP} \parallel \overline{CA}$ which meets $\overline{BA}$ extended at P.

ABCD is the required quadrilateral. While, CPB is the required triangle which is equal to quadrilateral ABCD.

Q.9. Prove that the right bisectors of the sides of a triangle are concurrent. (9)

Ans For Answer see Paper 2014 (Group-I), Q.9.

OR

Prove that triangles on the same base and of the same altitudes are equal in area.

Ans For Answer see Paper 2014 (Group-I), Q.9(OR).